

# Extreme heat and paediatric emergency department visits in Southwestern Ontario

## Fact Sheet No. 1

September 2021



# Introduction

Climate change is expected to increase temperatures, and with that, extreme heat will become more frequent and severe. With extreme heat, there are many ways the health of communities can be impacted (1-4).

This fact sheet was created to help service providers and community stakeholders develop their knowledge about the health impacts that extreme heat may have on children, particularly in Southwestern Ontario. This fact sheet will also highlight how emergency departments may experience a higher volume of visits from children during periods of extreme heat.

## Definitions

*Heat Waves* are prolonged period of hot weather. During a heat wave, temperatures are much higher than the expected seasonal temperature of a particular location (5).

*Extreme heat* usually occurs during a heat wave. On days with extreme heat, the temperature is much higher than the average temperature for the whole period of the heat wave (6).

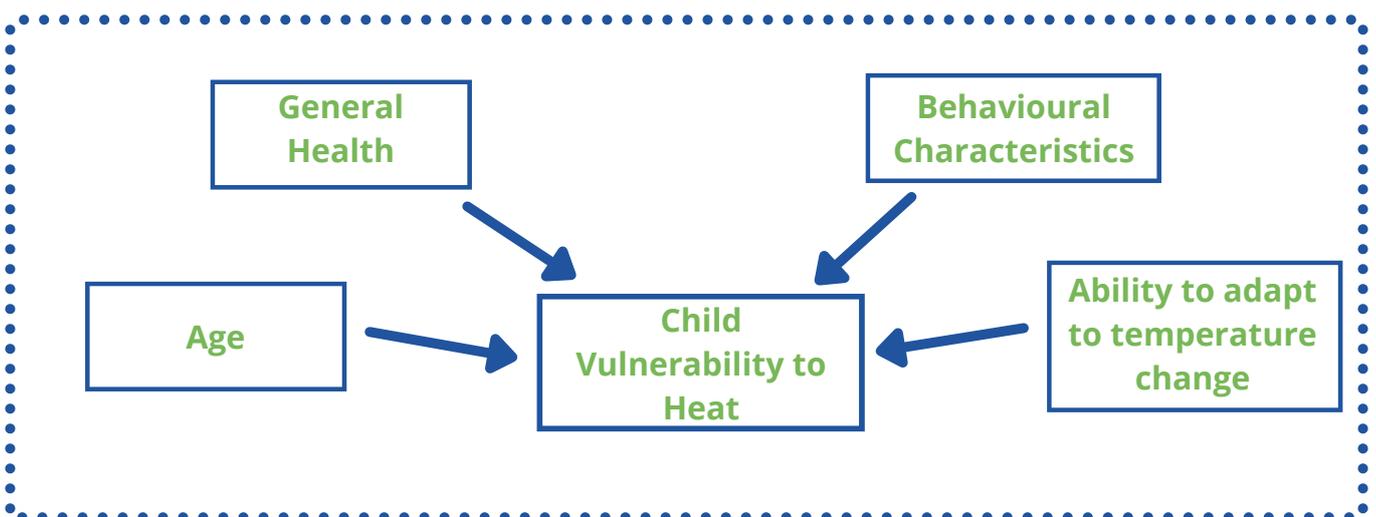
### Box 1: Extreme heat in London, Ontario

The Climate Atlas of Canada predicts the number of very hot days (>30°C) per year in the City of London, Ontario will increase from an average of 12 (1976 to 2005) to an average of 33 (2021 to 2050) (17).

## Vulnerable populations

Much of the existing research reports that the elderly (7,18) and children (5, 8-10) are particularly vulnerable to the health impacts of extreme heat. Children under the age of 5 may be especially vulnerable because of factors, such as, their unique physiological and behavioural characteristics (11-13). During heat waves, children may be at a higher risk of fever, and electrolyte imbalances (14).

**Figure 1: Factors contributing to heat vulnerability among children (12)**



## Box 2: Children and extreme heat in London, Ontario

Our study looked at how the number of visits by children to emergency departments (EDs) are impacted by extreme heat. Researchers focused on EDs at two hospitals—Children’s Hospital and University Hospital, both part of the London Health Sciences Centre, in London, Ontario. The study took place between June and August of 2002 to 2019. Researchers found an association between extreme heat visits to the ED among children in Southwestern Ontario. Extreme heat was associated with a 22% increase in ED visits. The effects were most evident for children ages 1-12 for all causes (excluding injury) and infectious diseases. This association mostly occurred between the 2nd and 5th day after the extreme heat day, suggesting a slightly delayed effect. The study also found that children ages 1-12 experienced 62.5% of the ED visits (15).

## Next steps

Lots of work still needs to be done to help reduce the impacts of extreme heat on the health of children and the general population. This work is needed to monitor and understand national, provincial, and local changes in the effects of extreme heat on child health, as well as to inform local hospital and public health programs and policies that aim to mitigate negative health effects (15). Moving forward, hospitals should develop appropriate surge-capacity and emergency preparedness protocols and procedures (15). Efforts taken in the broader community to reduce the impacts of extreme heat, such as through ED preparedness, will have longer lasting effects compared to if prevention efforts are only taken at the individual level (16).

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